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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,124	11/21/2003	Eric Holzle	50561/002001	1123
21559	7590	11/13/2008		
CLARK & ELBING LLP 101 FEDERAL STREET BOSTON, MA 02110			EXAMINER NEGIN, RUSSELL SCOTT	
			ART UNIT 1631	PAPER NUMBER
			NOTIFICATION DATE 11/13/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

Office Action Summary	Application No. 10/707,124	Applicant(s) HOLZLE, ERIC	
	Examiner RUSSELL S. NEGIN	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Comments

Applicants' amendments and request for reconsideration in the communication filed on 29 July 2008 are acknowledged and the amendments are entered

Claims 7-10 and 13-16 are pending and examined in the instant Office action.

Withdrawn Objections/Rejections

The objection to the specification for incorporating new matter is withdrawn in view of amendments filed to the instant specification on 29 July 2008.

The rejection of claims 12-13 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of amendments filed to the instant set of claims on 29 July 2008.

The rejection of claims 10 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of arguments filed by applicant on 29 July 2008.

The rejection of claims 11-12 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of amendments filed to the instant set of claims on 29 July 2008.

The rejection of claims 7-8 and 13 under 35 U.S.C. 102(b) as being anticipated by Jacob et al. [Nature Genetics, February 2002, volume 30, pages 175-179] is withdrawn in view of amendments filed to the instant set of claims on 29 July 2008.

The rejection of claims 9-12 under 35 U.S.C. 103(a) as being unpatentable over Jacob et al., in further view of Wedekind et al. [Proc. R. Soc. London B, 1995, volume 260, pages 245-249.] is withdrawn in view of amendments filed to the instant set of claims on 29 July 2008

The following rejection is reiterated with an additional grounds of rejection:

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7-10 and 15-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The method claims of the instant application (instant claims 7-10 and 15-16) recite a series of steps without a physical transformation. Further, the claims fail to recite a tie to another statutory class of invention. It is further noted that the result of the method is not tangible because it is not output (i.e. to a user or in a user accessible form), but may remain *in silico* and only accessible to other computers.

It is noted that claims 13 and 14 are statutory because they do recite a physical transformation of actually performing genotyping.

Response to Arguments:

Applicant's arguments filed 29 July 2008 have been fully considered but they are not persuasive. Applicant argues that amendments to the instant set of claims overcome this rejection because they clarify the process that is occurring in that the matching must occur in a tangible (i.e. social or sexual) manner. This argument is not persuasive because the final step of instant amended claim 7 recites "partnering at least one pair of said profile matched individuals into a social or potentially sexual group in a dating service" wherein there is no requirement that this partnering result of the instant claim be output to any user accessible and tangible media. In other words, partnering could be merely an in silico step, thus this process could occur entirely within a computer.

The following rejections are newly applied and necessitated by applicant's amendments:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. 103 Rejection #1:

Claims 7-8 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacob et al. [Nature Genetics, February 2002, volume 30, pages 175-179; on previous 892 form] in view of Copley; [New Scientist, volume 171, no 2304, page 15, August 18, 2001; on previous 892 form].

Claim 7 is drawn to a method of matching partner seeking individuals in a dating service comprising:

- determining the MHC Class I and Class II genetic profiles of a plurality of said individuals, thereby providing a plurality of profiled individuals;

- performing a plurality of comparisons between said profiles for a plurality of said profiled individuals, wherein a greater level of heterozygosity between a pair of profiled individuals is indicative of a greater level of compatibility;

- matching said profiled individuals based on said level of heterozygosity, thereby providing profile-matched individuals; and

- partnering at least one pair of said profile-matched individuals into a social or potentially sexual group in a dating service.

The study of Jacob et al. teaches that paternally inherited HLA alleles are associated with women's choice of male odor.

The experiment of Jacob et al. exposes a group of female "smellers" to odors emitted by males in T-shirts; and matches the preferences of the female to that of the odor emitting male.

Figure 1 of Jacob et al. on page 176 profiles a plurality of MHC complex genetic profiles (i.e. HLA-A and HLA-B in the Class I region and HLA-DR in the Class II region) for the paternal and maternal haplotypes of both the smellers and donors (step 1 of claim 7).

The article ends on page 178 column 2 (before the methods) by stating:

Consistent with earlier studies, these data indicate that there is not one most preferred male odor for everyone, but that odor preference is relative, based in this case on the degree of LA differences between a man and a woman.

Consequently, this study shows that increased differences (i.e. heterozygosities) in HLA genes represent a preferred male odor for the females (i.e. level of compatibility- step 2 of claim 7).

Figure 1 of Jacob et al. illustrates matching and partnering of the smellers to the donors (steps 3 and 4 of claim 7).

However, Jacob et al. does not teach partnering at least one pair of profile matched individuals into a social or potentially sexual group in a dating service. It is noted that in the absence of definitions of the terms "individuals" and "dating service," the terms are interpreted broadly to encompass rodents as individuals and mating groups as groups formed from "dating services."

Taking this interpretation into account, the article "Love is in the air" of Copley teaches an electronic nose (an "E-Nose") that classifies the scents based on MHC codes to further understand how rodents mate based on scents. In this instance, each rodent is an individual and the E-nose is the dating service.

Claim 8 is further limiting wherein said comparisons are performed for all of said individuals.

Figure 1 of Jacob et al. shows the comparisons for all participating individuals.

Claim 13-14 is further limiting wherein the determining comprises obtaining the samples from the plurality of individuals and typing sample genetic material obtained from said plurality of individuals to determine said individuals' MHC Class I and Class II profiles.

The final paragraph in column 1 of page 179 of Jacob et al. before the Acknowledgements ("HLA typing and scoring") describes that odor donors and subjects were typed for HLA-A, -B, -C, and -DR antigens by serology, and -DBQ1 alleles using molecular techniques. This HLA typing profiles both MHC Classes I and II as some of the above loci are on the MHC Class I region (i.e. HLA-A), while others are on the MHC Class II region (i.e. HLA-DBQ1).

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the MHC matching of Jacob et al. by use of the E-nose to classify rodent matings based on scent in Copley wherein the motivation would have been that the electronic nose of Copley has the advantage of acting as a more electronic and automated system for identifying matching scents as in the manual system of Jacob et al. [see, for example, the first three sentences of Copley] There would have been a reasonable expectation of success in applying the e-nose for

rodents of Copley to the manual scenting system of Jacob et al. because all of the scents are related to MHC complexes independent of species of animal from which the scents originate.

Response to Arguments:

Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection. The addition of the reference of Copley addresses the alleged deficiencies of Jacob et al. in describing the amended instant claims.

35 U.S.C. 103 Rejection #2:

Claim 9-10, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacob et al. in view of Copley as applied to claims 7-8 and 13-14 above, in further view of Wedekind et al. [Proc. R. Soc. London B, 1995, volume 260, pages 245-249.]

Claim 9 is further limiting wherein one of the said profiles includes the DRB1 locus of the class II region of the MHC complex.

Claim 10 is further limiting wherein compatibility of said individuals is also determined using other processes.

Claims 15-16 are further limiting wherein at least one pair of said profile matched individuals is partnered into a social group and potentially sexual group in a dating service, respectively.

Jacob et al. and Copley mark obvious the matching of partners based on odors using the DR gene. Jacob et al. also discloses in the first paragraph in column 1 on page 179 "Odor collection," documents that the set of odors obtained are not extraneous and offensive (i.e. participants of the study were told not to smoke.) Copley also discloses a social or potentially sexual group in a dating service.

However, Jacob fails to disclose the DRB1 gene or the matching process using "other processes," (i.e. those listed in claim 11).

The study of Wedekind et al. also investigates MHC-dependent mate preferences in humans using an analogous odor study to show that repulsion to similarity in MHC scents is a biological mechanism to prevent incest.

Wedekind et al. uses the DRB1 gene in column 2 on page 245 of the study to analyze similarities and differences in the MHC complexes.

Figure 4 on page 247 of Wedekind et al. teaches the "other" processes in determining matching by correlating preferential odors in a potential mate with odors of relatives (i.e. top of Figure 4) and odors of "ex-mates" (i.e. bottom of Figure 4). These comparisons do not involve genetic profiling.

It would have been obvious to someone of ordinary skill in the art at the time of the instant invention to modify the MHC matching study of Jacob et al. and the dating service of Copley by use of the MHC matching study using the DRB1 gene and the

“other” comparisons of Wedekind et al. wherein the motivation would have been that Wedekind et al. explicitly undertakes the study with one of the purposes as to show biological mechanisms to prevent incest [see pages 245, column 1 of Wedekind et al.]

Response to Arguments:

Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection. The addition of the reference of Copley addresses the alleged deficiencies of Jacob et al. and Wedekind et al. in describing the amended instant claims.

Conclusion

No Claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the central PTO Fax Center. The faxing of such pages must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center Number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Negin, Ph.D., whose telephone number is (571) 272-1083. The examiner can normally be reached on Monday-Friday from 7am to 4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Marjorie Moran, Supervisory Patent Examiner, can be reached at (571) 272-0720.

Information regarding the status of the application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information on the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/RSN/
Russell S. Negin, Ph.D.
28 October 2008

/Marjorie Moran/
Supervisory Patent Examiner, Art Unit 1631